We claim:

1. A method of treating Parkinson's disease in a human that comprises administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to one or both putamen of a human in need thereof.

2. A method of treating Parkinson's disease in a human that comprises

assessing dopaminergic function in one or both putamen of said human, pre-operatively;

identifying at least one site of dopaminergic dysfunction within one or both putamen;

administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to one or more of said sites; and, optionally,

assessing dopaminergic function at one or more of said sites post-operatively, at least once.

3. A method of increasing the function of dopaminergic neurons in a human that comprises administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to one or both putamen of a human in need thereof.

4. A method of increasing the uptake of dopamine by dopaminergic neurons in a human that comprises administering a pharmaceutical composition

comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to one or both putamen of a human in need thereof.

5. A method of regenerating dopaminergic neurons in a human that comprises administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to one or both putamen of a human in need thereof.

6. A method of protecting dopaminergic neurons susceptible to degeneration in a human that comprises administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to one or both putamen of a human in need thereof.

7. A method of treating Parkinson's disease in a human that comprises administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to the central region of at least one putamen of a human in need thereof.

8. A method of treating Parkinson's disease in a human that comprises administering a pharmaceutical composition comprising a pharmaceutically effective amount of a GDNF protein product and at least one pharmaceutically acceptable vehicle, excipient, or diluent to the postero-dorsal region of at least one putamen of a human in need thereof.

9. The method of any one of claims 1 through 8, wherein said vehicle, excipient, or diluent comprises sodium chloride and sodium citrate.

10. The method any one of claims 1 through 9, wherein said GDNF protein product is r-metHuGDNF.

11. The method any one of claims 1 through 10, wherein assessing dopaminergic function comprises assessing dopamine uptake or dopamine storage.

12. The method of any one of claims 2, 9, or 10, wherein said site of dopaminergic dysfunction is the postero-dorsal region of one or both putamen.

13. The method of any one of claims 2, 9, or 10, wherein said site of dopaminergic dysfunction is the central region of one or both putamen.

14. A kit comprising:

(a) one or more supplies of a pharmaceutical composition comprising a GDNF protein product and a pharmaceutically acceptable vehicle, excipient, or diluent; and

(b) one or more provisions for refilling an implanted drug delivery device with said pharmaceutical composition.

15. The kit of claim 14, wherein the GDNF protein product is r-metHuGDNF.

16. The kit of claim 14, wherein said vehicle, excipient, or diluent comprises sodium chloride and sodium citrate.

17. A kit comprising:

(a) one or more supplies of a pharmaceutical composition comprising a GDNF protein product and a pharmaceutically acceptable vehicle, excipient, or diluent; and

(b) one or more provisions for refilling an implanted drug delivery device with said pharmaceutical composition; and

(c) optionally, instructions for refilling said drug delivery device.

18. The kit of claim 17, wherein the GDNF protein product is r-metHuGDNF.

19. The kit of claim 18, wherein said vehicle, excipient, or diluent comprises comprises an aqueous buffer.

20. The kit of claim 19, wherein said aqueous buffer comprises sodium chloride and sodium citrate.

21. The kit of claim 20, wherein said provision for refilling said drug delivery device is one or more syringes.

22. The kit of claim 21, wherein said provision for refilling said drug delivery device is one or more supplies of a pharmaceutically acceptable diluent.

23. The kit of claim 22, wherein said diluent is citrate buffered saline, pH of about 4.5 to about 5.5.

24. The kit of claim 23, wherein the citrate buffered saline comprises 150 mM sodium chloride and 10 mM sodium citrate, pH 5.0.

25. The kit of claim 24, wherein the pharmaceutical composition, the diluent, and the syringes are sterile.